

In the Claims

The following Listing of Claims replaces all prior versions in the application:

LISTING OF CLAIMS

1. (Currently amended) A method for handling a roam request at a first switch, the roam request sent by a second switch and containing information about the client that is roaming to the second switch, the method comprising:

~~storing information regarding the client;~~

~~receiving the roam request at the first switch after said storing;~~

determining, in response to said receiving, if the first switch has stored information regarding the client;

~~if the first switch has stored information regarding the client, determining, in response to said receiving, if the first switch is a home agent for the client;~~

if the first switch has stored information regarding the client and is determined not to be the home agent, removing the stored information regarding the client from the first switch~~if the first switch is determined not to be a home agent for the client;~~

tunneling traffic for the client to the second switch if the first switch is determined to be a home agent for the client; and

sending a roam reply to the second switch.

2. (Original) The method of claim 1, wherein said roam reply contains network configuration information regarding the client.

3. (Currently amended) The method of claim 1, further comprising:

discovering if the first switch is the same as the second switch by determining if the roam request received by the first switch was also sent by the first switch;

performing said determining, removing, and tunneling only if the first switch is not the same as the second switch;

setting the first switch as the foreign agent if the first switch is the same as the second switch; and

updating a virtual network tag corresponding to the client in a data structure controlled by the first switch if the first switch is the same as the second switch.

4. (Original) The method of claim 3, wherein said updating includes updating a virtual local area network (VLAN) tag corresponding to the client with a new VLAN tag corresponding to a new VLAN to which the client has roamed.

5. (Original) The method of claim 3, further comprising:
ascertaining if the roaming being attempted is layer 2 or layer 3 roaming;
executing said performing and setting only if the roaming being attempted is layer 3 roaming.
removing information regarding the client from a data structure controlled by the first switch.

6. (Original) The method of claim 5, further comprising:
checking if the client is known to the first switch;
performing said ascertaining, executing, and removing only if the client is known to the first switch.

7. (Original) The method of claim 1, wherein said roam reply indicates failure if something went wrong during the process, otherwise it indicates success.

8. (Original) The method of claim 1, wherein the roam request is an Inter Switch Roaming Protocol (ISRP) roam request.

9. (Previously presented) A method for responding to client roaming at a first switch, the method comprising:
receiving a move request from an access point associated with the first switch; and
sending a roam request to all peer switches in the same mobility domain as the first switch; and

determining if the move request is associated with client roaming between two virtual local area networks (VLANs) serviced by the same switch by including said first switch in said sending.

10. (Original) The method of claim 9, wherein said move request is a Switch Access Point Protocol (SAPP) move request.

11. (Original) The method of claim 9, wherein said roam request is an ISRP roam request.

12. (Previously presented) A method for handling a roam reply at a switch, the roam reply having been sent in response to a roam request sent by the switch, the method comprising:

- receiving the roam reply from a switch determined, in response to the roam request, to be a home agent, the roam reply having information regarding a client that is roaming to the switch, the information not previously available at the switch;
- determining if the roam reply indicates that the handling of a roam request was successful;
- sending a reply to a corresponding access point indicating failure if the handling of said roam request was not successful;
- setting the switch as a Foreign Agent for the client if the handling of said roam request was successful;
- switching a router designated by the client with a default router for the switch if the handling of said roam request was successful; and
- sending a move reply to said corresponding access point if the handling of said roam request was successful.

13. (Original) The method of claim 12, wherein said switching includes:

- trapping all address resolution protocol (ARP) packets from the client; and
- sending an ARP reply to the client with a default router address for the switch.

14. (Original) The method of claim 12, wherein said move reply includes a new VLAN identification.,

15. (Original) The method of claim 12, wherein said move reply is a SAPP move reply.

16. (Currently amended) An apparatus for handling a roam request at a first switch, ~~the first switch having been previously accessed by a client and containing stored information regarding the client~~, the roam request sent by a second switch and containing information about a client that is roaming to the second switch, the apparatus comprising:

a known client checker operative to determine if the client is known to the first switch by determining if information regarding the client is stored by the first switch;

a first switch home agent determiner operative to determine, if the client is known to the first switch, whether in response to the roam request, if the first switch is a home agent of the client;

a client information remover coupled to said first switch home agent determiner, the client information remover operative to remove the client information regarding the client in response to a determination by the determiner that the first switch is not a home agent of the client;

a second switch traffic tunneler coupled to said first switch home agent determiner, the second switch traffic tunneler operative to tunnel traffic to the client in response to a determination by the determiner that the first switch is a home agent of the client; and

a roam reply sender coupled to said client information remover and to said second switch traffic tunneler.

17. (Original) The apparatus of claim 16, further comprising:

a first switch second switch identical discoverer coupled to said first switch home agent determiner, said client information remover, and said second switch traffic tunneler;

a first switch foreign agent setter coupled to said first switch second switch identical discoverer; and

a virtual network tag updater coupled to said first switch foreign agent setter.

18. (Original) The apparatus of claim 17, further comprising:

a layer 2 or layer 3 roaming ascertainment coupled to said first switch second switch identical discoverer, said first switch foreign agent setter, and said virtual network tag updater; and

a client information remover coupled to said layer 2 or layer 3 roaming ascertainment.

19. (Original) The apparatus of claim 18, further comprising:

a known client checker coupled to said layer 2 or layer 3 roaming ascertainment and to said client information remover.

20-22. (Canceled)

23. (Currently amended) An apparatus for handling a roam request at a first switch, the roam request sent by a second switch and containing information about the client that is roaming to the second switch, the apparatus comprising:

~~means for storing information regarding the client;~~

means for receiving the roam request at the first switch~~after said storing;~~

means for determining, in response to receipt of the roam request by the means for receiving, if the first switch has stored information regarding the client;

means for determining, if the first switch has stored information regarding the client, whether the first switch is a home agent for the client;

means for removing the stored information regarding the client from the first switch if the first switch is not a home agent for the client;

means for tunneling traffic for the client to the second switch if the first switch is a home agent for the client; and

means for sending a roam reply to the second switch.

24. (Original) The apparatus of claim 23, wherein said roam reply contains network configuration information regarding the client.

25. (Original) The apparatus of claim 23, further comprising:

means for discovering if the first switch is the same as the second switch;

means for performing said determining, removing, and tunneling only if the first switch is not the same as the second switch;

means for setting the first switch as the foreign agent if the first switch is the same as the second switch; and

means for updating a virtual network tag corresponding to the client in a data structure controlled by the first switch if the first switch is the same as the second switch.

26. (Original) The apparatus of claim 25, wherein said means for updating includes means for updating a virtual local area network (VLAN) tag corresponding to the client with a new VLAN tag corresponding to a new VLAN to which the client has roamed.

27. (Original) The apparatus of claim 25, further comprising:

means for ascertaining if the roaming being attempted is layer 2 or layer 3 roaming;

means for executing said performing and setting only if the roaming being attempted is layer 3 roaming.

means for removing information regarding the client from a data structure controlled by the first switch.

28. (Original) The apparatus of claim 27, further comprising:

means for checking if the client is known to the first switch; and

means for performing said ascertaining, executing, and removing only if the client is known to the first switch.

29. (Original) The apparatus of claim 23, wherein said roam reply indicates failure if something went wrong during the process, otherwise it indicates success.

30. (Original) The apparatus of claim 23, wherein the roam request is an ISRP roam request.

31-37. (Canceled)

38. (Currently amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for handling a roam request at a first switch, the roam request sent by a second switch and containing information about the client that is roaming to the second switch, the method comprising:

~~storing information regarding the client;~~
receiving the roam request at the first switch ~~after said storing;~~
determining, in response to said receiving, if the first switch has stored information regarding the client;
~~if the first switch has stored information regarding the client, determining ,in response to said receiving,~~ if the first switch is a home agent for the client;
if the first switch has stored information regarding the client and is determined not to be the home agent, removing the stored information regarding the client from the first switch ~~if the first switch is not a home agent for the client;~~
tunneling traffic for the client to the second switch if the first switch is a home agent for the client; and
sending a roam reply to the second switch.

39-40. (Canceled)

41. (New) A switch configurable for management of roaming by one or more mobile clients in a wireless network, the switch comprising:

a roam request receiver configured to receive a roam request, the roam request including an indication of a roaming client;
a known client checker configured to determine if the roaming client is known to the switch;
an ascertainment configured to determine, if the roaming client is known to the switch, whether or not the roaming client is conducting layer 3 roaming;
an identical discoverer configured to determine, if the roaming client is determined to be conducting layer 3 roaming, whether the roam request was sent by the switch or by another switch;

a foreign agent setter configured to set the switch as a foreign agent if the roaming client is determined to be conducting layer 3 roaming and roam request was sent by the switch;

a home agent determiner configured to determine, if the roam request was sent by the switch, whether the switch is a home agent of the roaming client;

a client information remover configured to remove information regarding the client from the switch if the switch is determined not to be the home agent of the roaming client; and

a traffic tunneler configured to, if the switch is determined to be the home agent, tunnel traffic from the switch to the other.

42. (New) A method for handling roam request received by a receiving switch, the roam request containing information regarding a roaming client that is roaming from one access point to another access point in a wireless network, the method comprising:

receiving the roam request;

checking whether the roaming client is known to the receiving switch;

if the roaming client is known to the receiving switch, determining if the roaming client is conducting layer 3 roaming;

if the roaming client is conducting layer 3 roaming, determining whether the roam request was sent by the receiving switch;

if the roaming client is conducting layer 3 roaming and the roam request was sent by the receiving switch, setting the receiving switch to be a foreign agent of the roaming client;

if the roam request was not sent by the receiving switch, determining if the receiving switch is a home agent of the roaming client;

if the roaming client is known to the receiving switch, the roam request was not sent by the receiving switch, and the receiving switch is not the home agent, removing any stored information about the roaming client from the receiving switch; and

tunneling traffic to the sending switch from the receiving switch if the receiving switch is the home agent of the roaming client.

43. (New) A system for handling roaming by a roaming client in a wireless network, the system comprising:

a first switch; and

a second switch,

wherein the first switch includes:

a known client checker operative to determine if the client is known to the first switch by determining if information regarding the client is stored by the first switch;

a first switch home agent determiner operative to determine if the first switch is a home agent of the client;

a client information remover coupled to said first switch home agent determiner, the client information remover operative to remove the information regarding the client in response to a determination by the determiner that the first switch is not a home agent of the client;

a second switch traffic tunneler coupled to said first switch home agent determiner, the second switch traffic tunneler operative to tunnel traffic to the client in response to a determination by the determiner that the first switch is a home agent of the client; and

a roam reply sender coupled to said client information remover and to said second switch traffic tunneler.